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BOX PATENT APPLICATION

Assistant Commissioner for Patents

Washington, D.C. 20231

Re: Filing of U.S. Patent Application
Inventors: Michael CARROLL
Title: SYSTEM AND METHOD FOR GENERATING ELECTRONIC
DOCUMENTS HAVING INDEPENDENTLY FORMATTABLE
REGIONS

Attorney Docket No.: 52817.000082

Dear Sir:

Attached is a new patent application for filing in the United States Patent and Trademark Office including six (6) pages of specification, four (4) pages of claims (numbered 1-24), one (1) page Abstract, four (4) sheets of drawings (labeled Figs. 1-5). Also enclosed is an executed Declaration, Assignment and Assignment Recordation Transmittal Form.

The filing fee is calculated as follows:

					Amount
Basic Filing Fee					\$ 760.00
Rate					
	Extra		Large Entity	Small Entity	
Number of Claims in Excess of 20	24 -20	4	\$18	\$9	\$72.00
Independent Claims in Excess of 3	4 -3	1	\$78	\$39	\$78.00
Assignment Recordation					\$40.00
TOTAL FEE DUE					\$ 950.00

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Attorney Docket No. 52817.000082

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A check in the amount of \$950.00 is attached to cover the basic application filing fee, including excess claims. In the event of any variance between the amount enclosed and the Patent and Trademark Office charges, please charge or credit any difference to the undersigned's Deposit Account No. 50-0206.

Please direct all communication concerning this application to:

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Respectfully submitted,

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Dated: October 21, 1999

**SYSTEM AND METHOD FOR GENERATING ELECTRONIC
DOCUMENTS HAVING INDEPENDENTLY FORMATTABLE
REGIONS**

5

Field of the Invention

The invention relates to documents having independently formattable regions. More particularly, the invention relates to structuring separate regions with selective attributes within a single document.

10

Background of the Invention

The advent of the Internet and World Wide Web within the Internet has increased the demand for more sophisticated types of document presentation. For example, users sending and receiving information over the Internet or other network often expect to see a document having a number of different presentation styles in order to distinguish between different types of information. For example, a user viewing an HTML mail application may see a document divided into a header and a footer. Similarly, a person viewing a web site may see an upper column having advertising, a right row having a site index, and the remainder of the web site comprising the body of text.

20

As illustrated in Figs. 1(a) to 1(c), present systems and methods require that a user create a plurality of documents in order to present a single document having independently formatted regions. Fig. 1(a) is the index file that provides the structure of the regions, while Figs. 1(b) and 1(c) provide the content. Once the source code for each of these documents is transmitted to a terminal device, such as a computer with a web browser, a document is rendered having the appearance of the document in Fig. 2. Thus, portions of a conventional document are stored as separate HTML files which the system must assemble in the right sequence to prepare an email or other framed page, and changing or editing one of the HTML files does not automatically ensure that other fields will be properly conformed.

30

These and other drawbacks exist with other systems.

Summary of the Invention

The invention overcoming these and other problems in the art relates to a system and method which generates freely programmable electronic documents having independent regions with their own attributes.

An object of the invention is to provide an system and method that
5 generates a unified document having independent regions, while storing the entire document in a single file.

Another object of the invention is to provide a system and method that permits consistent editing of electronic documents, without the necessity to make corresponding edits through multiple files.

10 Another object of the invention is to provide a system and method which generates electronic documents having arbitrary sets of frames, fields or panes which can be adjusted according to user requirements.

According to one embodiment of the invention, the presentation of a document onscreen is governed by a document management file, containing
15 records controlling all attributes of individual portions of the document. Using this unified file structure, a file can be decomposed into an arbitrary number or regions or frames, without resorting to individual descriptors stored in separate files. Email documents can, for instance, be broken down into as many regions as desired, each of which may be separately scrolled or otherwise processed.

20 Brief Description of the Drawings

Figs. 1(a) to 1(c) illustrate the implementation of regions using existing systems and methods.

Fig. 2 is an illustration of a document rendered from the source code of Figs. 1(a) to 1(c).

25 Fig. 3 is an illustration of a document management file in accordance with an embodiment of the present invention.

Fig. 4 is an illustration of a document management table in accordance with another embodiment of the present invention.

Fig. 5 is an illustration of a document rendered from the source code of
30 Fig. 4.

Detailed Description of Preferred Embodiments

One embodiment of the invention relates to the presentation of an document in a mark-up language, such as HTML document as shown in Fig. 2. In Fig. 2, a document is provided having a header and a body section. The
5 header and body section may have different formatting, different default attributes, or other different attributes.

It will be appreciated that other formats for document are contemplated by the invention, and that indeed free programmability of the document structure is an object of the invention. It will likewise be appreciated that the
10 invention is intended to be operable with all types of electronic documents, including word processing files, email documents, Web-related pages, and in general any type of electronic formatting benefiting from improved formatting.

Fig. 3 is an illustration of the source code of a document management file 300 in accordance with an embodiment of the present invention. Various
15 characteristics of the present invention may be the same as characteristics of existing systems and methods, such as the <html> tag at line 301 and the <head> tag at line 302. In a preferred embodiment, the present system may provide the source for the frameset in the same document management file as the frame structure. For example, in line 306, the system may extract the
20 content of the header source from lines 310 to 312 of the same file. Similarly, the system may extract the content of the body source from lines 313 to 315.

In addition to providing content for the regions in a single file, as shown in Fig. 3, the system may also associate various attributes with the content. For example, in addition to associating the text "This is the header" with the header
25 source, the system may also associate various attributes such as character formatting (font size, default language or color), region formatting (background color, default language or default character formatting), other attributes associated with text or regions, or a combination thereof. For example, a document may have one region that has a default language of Japanese, a white

background, and black text, and a second region that has a default language of English, a black background, and white text.

In a preferred embodiment, additional functional attributes may be associated with a region. For example, an "input" attribute may create an input field in a particular field, while an "email address" attribute may identify the region as containing at least one email address. These function attributes may have default format attributes associated with them. For example, an "email address" attribute may have a predetermined color and underlining attribute associated with. An example of a function associated with an "email address" function attribute is that when a positional indicator comes into a predetermined relationship with a region, the cursor may change appearance and allow a user to create an email addressed to a particular email address. This functionality may be similar to the functionality of an HTML "mailto" tag (Mike).

Fig. 4 is an illustration of a document management table 400 in accordance with another embodiment of the present invention. Specifically, Fig. 4 is an example of implementing the independent formatting of regions through the use of tables. Row 410 may provide a description of or name for the type of information provided by each column. Each of the other rows (Row 420 and 430) may provide a different record to which the information relates, whereas each of the columns may indicate a different type of attribute information that is being provided by the source code.

For example, Column 401 may specify a name for a region or record. Column 402 may provide the content of the record. Column 403 may provide the character attributes of the record. Each of the fields may provide information that establishes how a document is rendered at a terminal device. For example, field 421 provides the information that the record is named "header," while field 422 provides the information that the content is "This is the header". In a preferred embodiment, a document management table 400 may have region attributes associated with a name. For example, a record

named "header" may be placed at the top of a document covering 20% of a screen when rendered whereas a region named "body" may be placed at the bottom of the document covering the remaining 80% of a screen when rendered. Such region attribute defaults may be overridden by specifying new attributes in an attribute field. Additionally, if there is no default region attribute, any attribute relating to a record may be placed in an attribute field associated with the record.

Additional rows, columns and fields may be provided. Furthermore, other methods of assigning attributes may be utilized, such as drop-down boxes, check boxes, or other attribute selection methods. In a preferred embodiment, the information provided in each of the fields may be linked information. For example, if a document is going to display the telephone number of a person associated with a document, a link to the person's telephone number may be provided in Column 404. A record may contain a link to another document or database that contains the information that is to be rendered when the base document is rendered.

Fig. 5 is an illustration of a document rendered from the source code of Fig. 4. Specifically, the content and the attributes associated with each of the records is applied to the document. In a preferred embodiment, the source code of Fig. 4 may be translated at a server prior to being transmitted over a network. For example, a first server may read the source code of Fig. 4, translate it into another language, such as HTML, and deliver it across a network. For this embodiment, the system may develop a plurality of documents from the original document management table 400 prior to transmitting the document across the network in order to comply with the formatting requirements of a receiving device. In another embodiment, the source code of Fig. 4 may be translated to HTML or other language once the document has been created. Furthermore, in another embodiment, the web browser or other application that is being used to render the document may translate the source code of Fig. 4 directly to render a document as shown in Fig. 5.

5 In terms of network processing, in the practice of the invention the reading of the document management file 300 is preferably carried out by a client workstation or other communication device (not shown) connected to a server over any available communications link, such as dial-up modem, Ethernet, T1 or T3 lines, ISDN connections or others. The client workstation may be a personal computer running Microsoft WindowsTM 95, 98 or NTTM, a Unix or Linux workstation; a Web appliance such as Sony WebTVTM; or other computing or communication devices. The document is physically transmitted from the server to the client workstation at login, upon request by the remote user or at other times.

10 The adjustments to the configuration of the email document can be done by a systems administrator at the server, or by the user at the client computer for local use or uploading. The records and attributes of document management file 300 can be coded using conventional languages such C++ or Java, or using special purpose markup languages directed to formatting of the resulting electronic document. Regardless of the specific type of document presented, in the invention not only are all governing attributes stored in a single file but any region and attribute in a region can be freely programmed, resulting in a fully modifiable document structure. In a preferred embodiment, none of the regions of the document are hardwired to a format that can not be adapted.

15 The foregoing description of the system and method of the invention is illustrative, and variations in configuration and implementation will occur to persons skilled in the art. For instance, while the invention has been described with respect to an email document broken down into the two main portions of a header and body, in practice any electronic document can be prepared and processed using the invention. An electronic document generated according to the invention can be decomposed into any number of regions in arbitrary configuration. For instance, a document with 10, 20 or any other number of regions could be created. The scope of the invention is intended to be limited only by the following claims.

Claims

- 1 1. A method of composing an electronic document, comprising the steps
2 of:
 - 3 a) storing region information relating to at least two independently
4 formattable regions in a document; and
 - 5 b) storing content information in at least two content fields in the
6 document, wherein the structure of the document is governed by the structure
7 information and the content of the document is governed by the content
8 information.
- 1 2. The method of claim 1, wherein each region field is assigned a unique
2 content field.
- 1 3. The method of claim 1 further comprising step (c) storing attribute
2 information in at least two attribute fields, wherein the attribute information and
3 the content information are associated with the region information.
- 1 4. The method of claim 3, wherein the attributes comprise at least one of
2 highlighting, bolding, underlining, italicizing, a default language, and a
3 background color.
- 1 5. The method of claim 3, wherein each region is associated with a unique
2 content field or a unique attribute field.
- 1 6. The method of claim 3, wherein at least one region field has a unique
2 combination of the content field and the attribute field.

- 1 7. The method of claim 3, wherein at least one of the regions corresponds to a
2 header of an email message, and at least another of the regions corresponds to a
3 body of an email message.
- 1 8. The method of claim 3, wherein the region information, the content
2 information, and the attribute information are contained in a document
3 management file.
- 1 9. The method of claim 3, wherein the region information, the content
2 information, and the attribute information are contained in a document
3 management table.
- 1 10. The method of claim 9, wherein the document management table is
2 translated into a standardized markup language prior to transmission of the
3 document across a network.
- 1 11. The method of claim 3, wherein a region having a predetermined name has
2 at least one associated region default attribute.
- 1 12. The method of claim 11, wherein the associated region default attribute may
2 be overridden in the associated attribute field.
- 1 13. The method of claim 3 further comprising the step (d) translating the
2 document into a plurality of HTML documents.
- 1 14. The method of claim 3 wherein at least one of the content information or
2 the attribute information is linked information.
- 1 15. The method of claim 3 wherein at least one of the attribute fields comprises
2 a functional attribute.

1 14. A system for processing an electronic document, comprising:
2 a) a storage unit for storing region information, content information, and
3 attribute information of the electronic document; and
4 b) a processor unit, wherein the processor unit associates the attribute
5 information and the content information with the region information.

1 15. The system of claim 14, wherein the region information governs the
2 structure of the document, the content information governs the content within
3 each region, and the attributes region governs the format of each region.

1 16. The system of claim 15, wherein the attribute region further governs the
2 functionality associated with a particular region.

1 17. The system of claim 14, wherein the processor unit translates the region
2 information, the content information, and the attribute information into at least
3 two documents prior to transmitting across a network.

1 18. A computer usable medium having computer readable program code
2 embodied therein for storing an electronic document, the computer readable
3 program code comprising:
4 a) computer readable program for storing region information corresponding
5 to regions of the electronic document; and
6 b) computer readable program for associating attribute information and
7 content information with each of the regions, the attributes governing a
8 presentation of the electronic document and the content information governing
9 the content of the region when rendered.

1 19. The computer usable medium of claim 18, wherein the attribute
2 information comprises functional attribute information.

1 20 The computer usable medium of claim 19, wherein the region
2 information, the content information, and the attribute information are stored in
3 a document management table.

1 21. A system for processing an electronic document, comprising:
2 a) storage unit means for storing region information, content information,
3 and attribute information of the electronic document; and
4 b) processor unit means, wherein the processor unit means associates the
5 attribute information and the content information with the region information.

1 22. The system of claim 21, wherein the region information governs the
2 structure of the document, the content information governs the content within
3 each region, and the attributes region governs the format of each region.

1 23. The system of claim 22, wherein the attribute region further governs the
2 functionality associated with a particular region.

1 24. The system of claim 21, wherein the processor unit means translates the
2 region information, the content information, and the attribute information into at
3 least two documents prior to transmitting across a network.

Abstract

A system and method for generating a single electronic document having independently formatted regions. Different regions of a document are given attributes according to a set of region records, which are all contained within a single file. No assembly of separate HTML files as in the HTML standard is
5 necessary. Users can customize documents to desired formats, without restriction.

```
C:\WINDOWS\Favorites\Clients\Lotus\Index.html
<HTML>
<HEAD>
  <TITLE>Example Prior Art Structure File</TITLE>
</HEAD>
<frameset rows="20%,*" border=0>
  <frame name="Header" src="Header.HTML" marginwidth="10" marginheight="10"
  <frame name="Body" src="Body.HTML" marginwidth="10" marginheight="10" scr
</frameset>
</HTML>
```

Fig. 1(a)

```
C:\WINDOWS\Favorites\Clients\Lotus\Body.html
<HTML>
<HEAD>
  <TITLE>Body</TITLE>
  <META name="description" content="">
  <META name="keywords" content="">
</HEAD>
<BODY BGCOLOR="FFFFFF" TEXT="000000" LINK="0000FF" VLINK="800080">
This is the body
</BODY>
</HTML>
```

Fig. 1(b)

```
C:\WINDOWS\Favorites\Clients\Lotus\Header.html
<HTML>
<HEAD>
  <TITLE>Header</TITLE>
  <META name="description" content="">
  <META name="keywords" content="">
</HEAD>
<BODY BGCOLOR="FFFFFF" TEXT="000000" LINK="0000FF" VLINK="800080">
This is the header
</BODY>
</HTML>
```

Fig. 1(c)

PRIOR ART

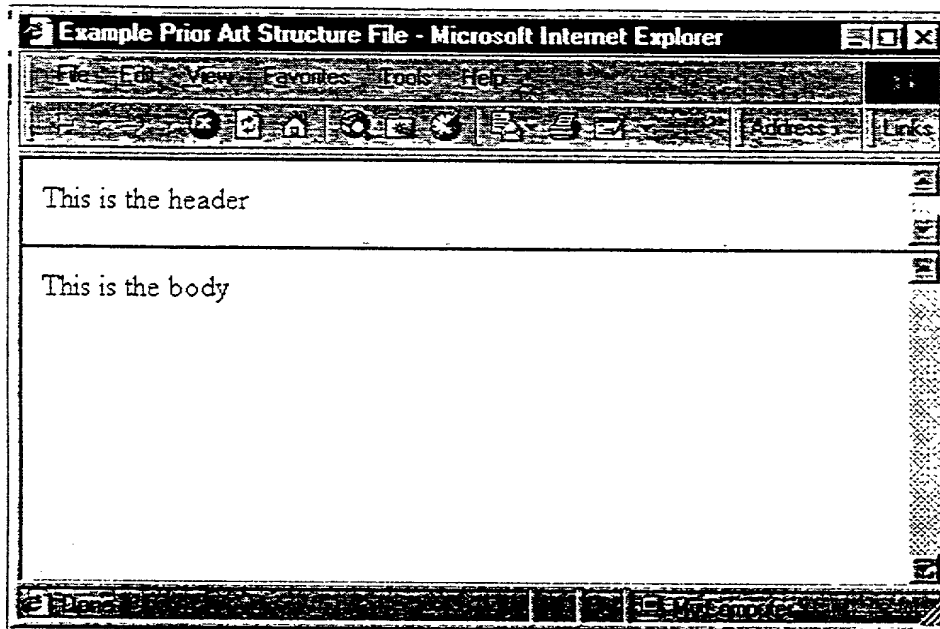


Fig. 2

301 <HTML>
302 <HEAD>
303 <TITLE>Present Invention Structure and Content File</TITLE>
304 </HEAD>
305 <frameset rows="20%,*" border=0>
306 <frame name="Header" src="Header" marginwidth="10" marginheight="10">
307 <frame name="Body" src="Body" marginwidth="10" marginheight="10">
308 </frameset>
309 <BODY BGCOLOR="FFFFFF" TEXT="000000" LINK="0000FF" VLINK="800080">
310 <Frame=Header>
311 This is the header
312 </Frame>
313 <Frame=Body>
314 This is the body
315 </Frame>
316 </BODY>
317 </HTML>

~300

Fig. 3

400

Column 401	Column 402	Column 403	
record	content	attribute	Row 410
header	This is the header	bold, underline	Row 420
body	This is the body	italic	Row 430

Fig. 4

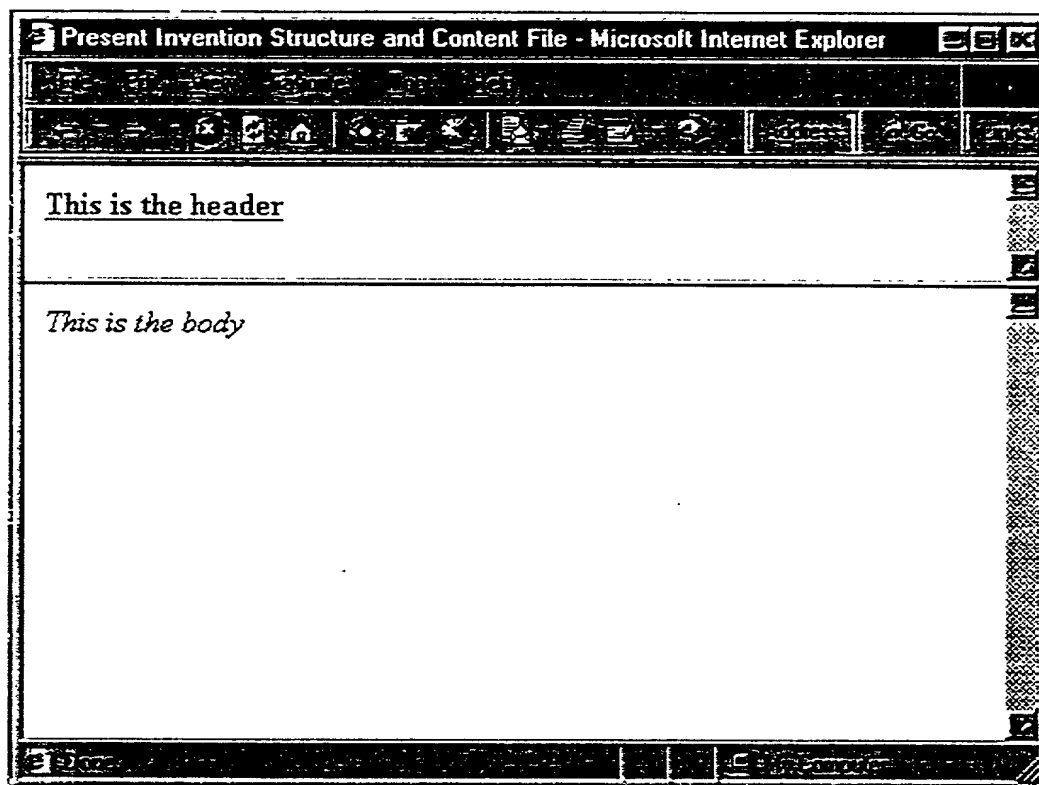


Figure 5

SOLE DECLARATION FOR PATENT APPLICATION

As the below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe that I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **SYSTEM AND METHOD FOR GENERATING ELECTRONIC DOCUMENTS HAVING INDEPENDENTLY FORMATTABLE REGIONS** the specification of which

(X) is attached hereto.

() was filed on _____

as Application Serial Number _____ and was

amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Country	Application Number	Date of Filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed Under 35 U.S.C. 119
				Yes <input type="checkbox"/> No <input type="checkbox"/>
				Yes <input type="checkbox"/> No <input type="checkbox"/>
				Yes <input type="checkbox"/> No <input type="checkbox"/>
				Yes <input type="checkbox"/> No <input type="checkbox"/>

Prior United States Application(s)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below, and insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial Number	Date of Filing (day, month, year)	Status - Patented, Pending, Abandoned
60/112,191	15/December/1998	Pending

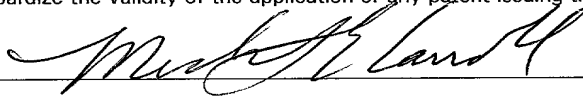
And I hereby appoint, both jointly and severally, as my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith the following attorneys, their registration numbers being listed after their names:

Thomas J. Scott, Jr., Registration No. 27,836; Stanislaus Aksman, Registration No. 28,562; Kevin J. Dunleavy, Registration No. 32,024; James G. Gatto, Registration No. 32,694; Scott D. Balderston, Registration No. 35,436; Tyler S. Brown, Registration No. 36,465; Christopher C. Campbell, Registration No. 37,291; Henry C. Su, Registration No. 37,738; Brian M. Buroker, Registration No. 39,125; Thomas G. Woolston, Registration No. 40,235; Charles F. Hollis, Registration No. 40,650; Kevin T. Duncan, Registration No. 41,495; Jonathan D. Link, Registration No. 41,548; Christopher J. Cuneo, Registration No. 42,450; Stephen T. Schreiner, Registration No. 43,097; Raphael A. Valencia, Registration No. 43,216; and George B. Georgellis, Registration No. P43,632 and Matthew G. Pryor, Registration No. P45,278.

All correspondence and telephone communications should be addressed to Hunton & Williams, 1900 K Street, N.W., Washington, D.C. 20006-1109, telephone number (202) 955-1500, which is also the address and telephone number of each of the above listed attorneys.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature



Date

10/15/99

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